

SPARK GAP

Vol. 30, Issue 8, August 2013 *MARC - Serving Central Indiana Communities for thirty years*

On Our MARC...

Another one-day Technician's Class is in the books and I would like to thank all of those who worked so hard to make it possible. Thanks to all of the instructors and VEs who gave of their time to advance the cause of amateur radio. A special thanks goes to Steve Curtis, who served in so many roles, I don't know where to begin. He even ran out to pick up lunch for all of us and then didn't end up getting any himself. Sorry Steve, we'll hold the first place in the line for you next time!

It's not too late to throw your hat in the ring for an officer's position in the MARC for the 2013-14 year. If you are holding a valid amateur radio license and are a dues-current, full member of the club, you can run for president, vice president, secretary, or treasurer. If you are interested in running for repeater trustee, there is the additional requirement that you must hold at least a general class ticket. If you wish to run or would like to nominate someone else for a position, please contact Steve Carmean at k9dy@arrl.net. The slate will be finalized at the meeting on Aug. 17th with balloting up to the annual picnic on Sept. 21.

Speaking of the picnic, it is a great family event. Again this year we will be headed to Steve Brown's home in Franklin. He and his wife have graciously welcomed us for the past few years and the location couldn't be any better. Your admission is a covered dish or another item to share and a lawn chair to "sit a spell." The club will provide the meat, the drinks, and the paper goods.

A couple more items for your calendars are the annual Hilltopper event on the morning of Saturday, Sept. 28th and that same afternoon and evening, the annual GHS Band Invitational. Our Hilltopper location will be Independence Park on Morgantown Road in White River Township. We have secured a special call sign for the event K9J. Watch for more information soon on the band contest.

We will update everyone on our progress to establish a southern link at the business meeting at 8 a.m. on Saturday, Aug. 17th. We hope to see you there and, of course, I'll have the coffee pot on!

Bob - KC9NJM

President

M.A.R.C. 2013 - 2014 Officer Election Nominations

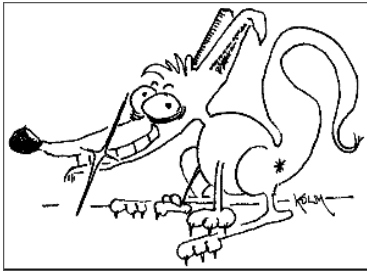
PRESIDENT - JACK PARKER W8ISH

VICE PRESIDENT - DAVE DAILY KB9LOT, STEVE ELLIS AF9SE

SECRETARY - RHONDA CURTIS WS9H

TREASURER - JACKIE FREDERICK KI6QOG

TRUSTEE - STEVE BROWN N9LC



Fox Hunt Details

The August Fox Hunt will be Saturday, August 31st from 2pm to 4pm. We will start at Garfield Park at shelter 5 which is located at Shelby St and Raymond St. Indianapolis.

Everyone is welcome to attend, whether or not you have equipment and/or experience.

Hope you see you there. Steve, ND9C

National Disaster Preparedness month, September 2013

When disaster strikes, will your community know how to respond? Practicing the appropriate actions to take before a disaster strikes is vital for saving lives. Did you know 46 percent of individuals expect to rely a great deal on people in their neighborhood for assistance within the first 72 hours after a disaster?

Research shows most people aren't as prepared as they think for disasters. In a recent preparedness survey, 46 percent of the respondents did not have a home evacuation plan, 80 percent had not conducted home evacuation drills and 60 percent did not know their community's evacuation route.

One way to ensure a positive response is to organize preparedness drills and practice them regularly to include knowing the pertinent evacuation route in your community. Consider learning the appropriate actions to take in advance of the following hazards: Fire; Tornado; and Severe weather events.

Remember, there is no substitute for running a live drill to practice your family's emergency plan.

Join the National Preparedness Community to learn best practices and find resources on how to prepare your community.

More information is available <http://community.fema.gov/connect.ti/readynpm/groupHome>

- 1: "Did you know 46 percent of individuals expect to rely a great deal on people in their neighborhood" link is: <http://www.ready.gov/neighbors-helping-neighbors-through-preparedness>
- 2: The "Research" link is: <http://www.ready.gov/community-preparedness-toolkit>
- 3: The "appropriate actions" link is: <http://www.ready.gov/>

..... Rusty, N9LLP



Coffee Break Training - Responder Health and Safety

Roadway Incident Operations Safety

No. HS-2012-3 March 21, 2012

Learning Objective: The student shall identify techniques for improved safety during roadway incident operations.

Numerous firefighters and other emergency responders have been struck on the roadway with some resulting in fatalities.

Some of the basics of safely operating on the roadway:

When operating on the roadway, always wear an appropriate American National Safety Institute (ANSI)-certified high-visibility traffic vest.

Park your emergency vehicle in a manner that shields the incident area from oncoming traffic in a manner that does not place you, other responders, or bystanders in danger. Also park away from hazardous areas such as downed electrical lines, falling debris and structures, flames, toxic gases, and smoke.

Ensure that your emergency vehicle can be seen by oncoming traffic by appropriately using its emergency warning lights. Do not blind oncoming traffic with the vehicle headlights, spotlights, scene lighting, or any other bright white light—turn them off when parked, especially at night.

Use orange Department of Transportation (DOT)-approved traffic cones at least 28 inches in height with retroreflective collars when setting up a safety zone on the roadway.

Another important safety measure is using retroreflective coral DOT-approved signs stating "EMERGENCY SCENE AHEAD," positioned "upstream" from the incident scene to warn approaching drivers.

The use of illuminated warning devices such as flares and/or other equipment such as arrow boards can channel moving traffic away from the lane(s) in which emergency responders are working to create a safe working zone.

To enhance the roadway operations for emergency responders, the U.S. Fire Administration (USFA) has developed the following programs and partnerships: www.usfa.fema.gov/fireservice/research/safety/roadway.shtm



Fire service traffic control personnel setting up traffic cones on roadway.

For archived downloads, go to:

www.usfa.fema.gov/nfa/coffee-break/



Greenwood Marching Band Invitational 2013

It is that time of year again; schools are back in session, football games on Friday nights and marching bands are once again on the football fields in competition. It is also the time of year when MARC helps out the Greenwood High School with their High School Marching Band Invitational. This has been an annual event for about thirty years and MARC members and friends have helped out by parking cars and public safety during this event. The Invitational is usually very well attended by the hundreds of fans, Mom & Dads, friend and relatives.

Once again the Greenwood HS Band Parents organization has requested the assistance of MARC. The number of bands expected is about the same as last year coming from many different areas of Indiana. Along with the bands are the school busses and many other trucks, semi-trucks and trailers that carry all their instruments etc.

Please help MARC with this event it usually takes from ten to fifteen hours to give them the assistance needed to make things flow smoothly.

You will need your favorite HT and extra charged battery pack, safety vest, a flashlight with wand, water, chair (when things slow down) and of course comfortable shoes.

The event starts in the afternoon and we should be in areas ready to work about 1:00 PM when the bands start arriving. The event concludes about 10:30 or 11:00 PM.

Your help with this event can serve as an exercise as in a situation that calls for a tactical net in a specified area and crowd control.

Please contact Bob N9SIU if you have any questions and your availability to help out.

..... Bob N9SIU

LINK SITE GOING UP ----->

Our long awaited southern county Link site is moving toward completion. In late July the Tech committee paid a visit to the prospective receive site in southeastern Johnson County. Actually the tower we intend to occupy is located just east of Edinburgh in Shelby County, but no one is telling.

Repeater Trustee Steven Brown-N9LC, Steve Carmean-K9DY, Jack Parker-W8ISH and tower climber Mike Rose-KC9WLR spent the morning checking out the tower, mounting positions and repeater shack. The 200 foot tower is behind the home of Bob Hawkins-WA8VZY. Our UHF beam is located at 70 feet up the tower and the new Ringo Ranger antenna will be mounted on an existing standoff at 170 feet. That is about 1000 feet above sea level or just short of the fighter jets strafing the Camp Atterbury bomb site. We expect the new receive site to give us hand held coverage from Franklin to Columbus and maybe beyond.

A new Yaesu FT-8800R dual band radio has been purchased to provide the cross-link function. The new DSP-402 controller is on order. The Link project is expected to be functional by late September 2013.

Jack w8ish



Checking the antenna



Discussion about the next move



Near the top



ON the way to the top



I can see my house from here

THE \$4 SPECIAL

by Joe Tyburczy, W1GFH

Sure, you can find "all-band wire antennas" for sale in the back pages of Ham magazines costing \$150 or more. But beware: *Marconi spins in his grave everytime a ham buys an aerial instead of building it.* The plain and simple truth is that wire antennas for the HF bands were intended to be *hand-made* and not store-bought.

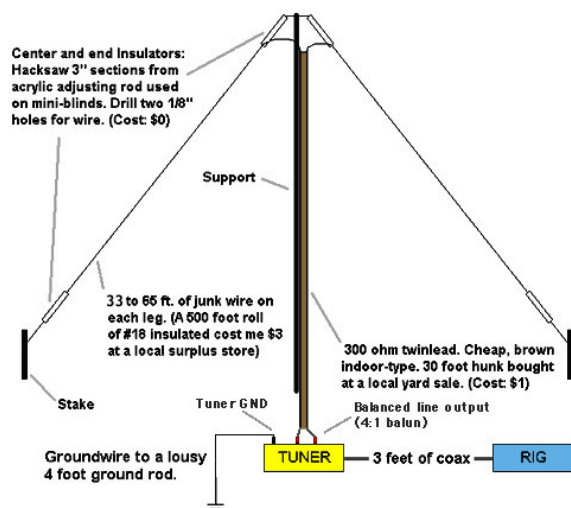
Untold generations of intrepid Radio Hams have fashioned their own equipment out of spit and baling wire. Do you think the spark-gap dudes of the 1920's just went out and bought ready-built G5RV's from HRO or AES? No way! They slapped together aerials out of bedsprings, chewing gum, and frozen cow poop. For them, every day was Field Day. I think that home-built antennas should be awarded 10 db of "honorary gain" simply by virtue of their ingenuity. And in this world of microprocessor controlled micro-rigs, constructing one may be your only chance to build something and actually see it work on the air. Think about it.

RadioWorks, Alpha-Delta, MFJ, B&W, Van Gordon, W9INN, and W7FG...nothing wrong with the wire antennas they sell. But buying one is no substitute for "rolling your own". Don't be overawed by their advertising rhetoric. You can make an antenna every bit as good as theirs, and even better in many cases.

Just Do It

Don't be intimidated by SWR, either. Your rig will not blow up and kill you. Most modern rigs will politely refuse to transmit into a really bad match. A perfect 1:1 SWR is for sissies, anyway. All **real** hams have conducted perfectly good QSO's at 3:1 (or more) at some time or another. You may be surprised to know that the vast majority of hams didn't fret about SWR until after WWII when coax cable and SWR meters ("SWR Bridges" as they were first known) became available on the commercial market. Before that time, you simply cut your antenna to frequency, loaded the transmitter final for best output according to the plate current meter, and that was that.

I am a big fan of "balanced line" (twinlead, open wire line, etc.) vs. coax. By using balanced line and a tuner you can have one, single-element antenna that works well on all bands. You can't do that as easily with coax. The basic "W1GFH \$4 SPECIAL" shown below is a variation on the type of versatile skyhook I've been using for years.



Now at this point, some of you may be looking at the diagram and muttering, "Jeez Joe, that's just a dipole fed with twinlead and used with a tuner". Well of course it is. Virtually all antennas are "di-poles" (i.e. "two sides") in some form or another. This one just happens to be made from low-cost materials.

I won't go into the theory here, but trust me: balanced feedline, properly used, does not "leak" RF and is less lossy than

coax. I've tried the commercial 450-ohm ladder line, but prefer 300-ohm TV twinlead, and the cheaper the better. Radio Shack TV twinlead is ideal. Home Depot has some good stuff, too. Forget all the obsessive junk about standing waves, impedance and velocity factor. What you really need to concentrate on is getting an interesting set of *antenna insulators*.



Hang It Up

Back during the disco era when I first got on the air, I got a pair of really cool antique *pyrex antenna insulators* from a flea market table in Derry, NH for 25 cents each. They looked like the kind Hiram Percy Maxim used in 1910, and seemed able to pull in exotic DX all by themselves. The other day I found out that Radio Shack wants \$5 apiece for insulators made from some kind of white plastic crap. So I improvised my own by sawing up pieces of an acrylic adjusting rod from a discarded miniblind. I think Hiram would've been proud of me.

Hang the center of the antenna from a tree limb, or use a support as pictured. The exact height of the antenna's feedpoint is not crucial. The higher, the better. 20 feet might be considered the minimum. 60 feet is ideal. However, in the real world, 30-50 feet is average.

For the antenna wire itself, virtually anything will work, but something close to #18 stranded/insulated is ideal. My favorite stealth antenna material is magnet wire. You can dig this out of an old transformer or even a busted loudspeaker's coil. This ultra-thin stuff is truly INVISIBLE to neighbors and wives alike, and it'll handle 100 watts, no sweat. If you need to keep a low profile, try it as a long longwire, end-fed from your tuner's "wire" terminal. (Be sure and ground everything in the shack like crazy) No trees in your yard? Use a sock filled with sand for a weight and hurl the far end of the wire onto a NEIGHBORS roof or tree. (I would advise doing this at night. If you are caught, claim you are "trying out an old FARMERS ALMANAC recipe to keep bats away". People universally hate bats, and love farmers) If you can't possibly scheme to get your wire more than a dozen feet off the ground, try flinging a few hundred feet of the magnet wire all around the yard in a big loop (find out measurements in the ARRL Handbook or Google "80 meter loop antenna"). Loops can perform satisfactorily at low heights. And remember, don't fuss too much about SWR. A little mismatch is good for you and builds character.

The ends of the antenna will be "hot" with RF, so it's a good idea to keep them out of reach of people and pets, say, at least 10 feet above ground. However the antenna will still function if you bring the ends down closer to the ground.



Love Your Tuner

An antenna tuner with a balanced output (internal or external balun) is a must. Using one is a simple matter of adjusting capacitance and inductance for the lowest SWR on a given frequency. Always begin your adjustments at low power, increasing to full power only when you have a reasonable match. At first, you may think it's inconvenient and old-fashioned to manually tune your antenna every time you change frequency, but you soon discover the unique satisfaction of tweaking the variable caps and watching the reflected power dip lower as the received signals grow a bit louder in your receiver. It's "real radio".

My first tuner was a 1980's wood-grain cabinet style MFJ-941 I got at a swap meet for \$15 a long time ago and featured an internal balun and connections for balanced lines on the back. Make sure YOUR tuner is an outboard manual type antenna tuner such as this, and not an "automatic" or internal tuner that is a pushbutton feature on many modern rigs. Because they must use small, light-duty components, these built-in tuners are typically limited to handling mismatches of 10:1. The mis-matches YOUR feedline will be seeing can be as high as 100:1. But don't worry. The he-man sized coils and air-variable caps in a typical outboard tuner will handle it just fine.

Don't believe the folklore about MFJ tuners being junk. It's true, they are cheaply made and their Quality Control is spotty, but the majority of them work perfectly OK if they aren't abused. So do old Dentron's, Drake, Vecronics, Nye Viking, etc. A link-coupled balanced tuner arrangement like the Johnson Matchbox would be even better, but use what

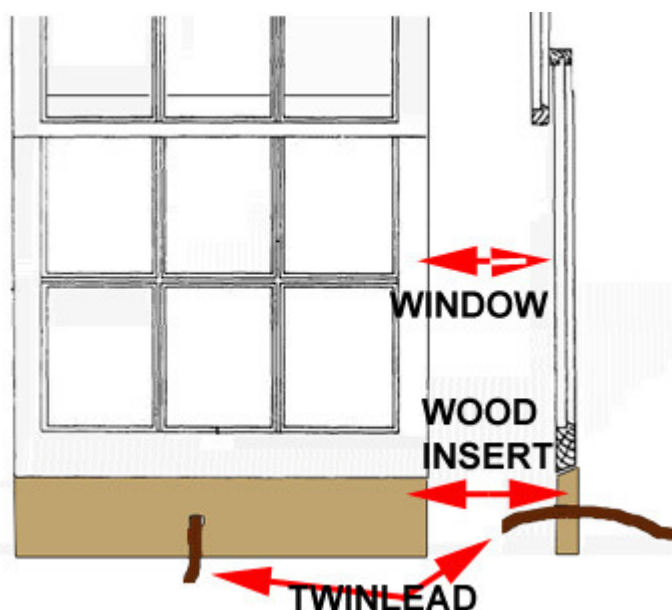
you have. Or make one. Ham radio (unlike some other hobbies) isn't a competition to see who can own the best or most expensive gear. *The idea is to get on the air with what you have or can afford, enjoy your self making contacts, and as time and money permits, try something else.*

I had a 65ft. per leg version of this antenna working in Massachusetts, and it'd tune up on all bands 80-10. At my Burbank, California QTH, I used a 35 ft. per leg version, and it tuned up on 40-10. By the way, you'll notice it's an inverted vee --- a real advantage if you don't have room for a full-sized dipole in your yard. If you still don't have room, bend and angle the legs to fit the space you've got. Antennas gently bent into Z-shapes still work fine!

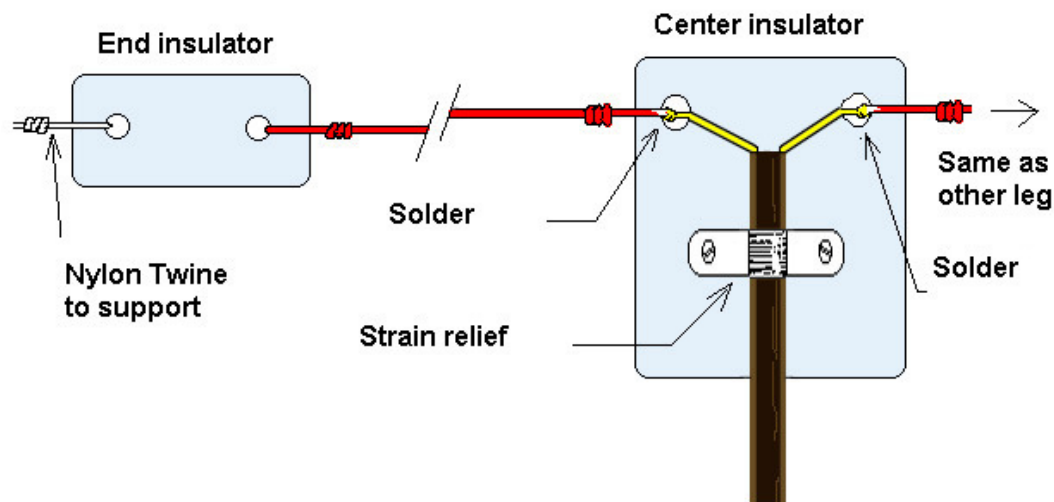


The Magic Of Twinlead & Wire

The uncut feedline comes straight in thru a clever window sash arrangement first used by hams in the 1920's. Alternately, you can attach the wires to feed-through bushings (which can be anything from two steel bolts...to a pair of banana jacks end-to-end) set into holes in the wood sash or a glass pane (or a plexiglass panel). 300 ohm twinlead only needs about 2" separation from metal objects in its path. Unlike coax, its "gotta be free" -- don't coil it up, kink it, bury it, or lay it on the ground. Gently brushing against tree limbs or tied to non-conductive surfaces like wood or plastic is OK. The 100 watt output of most transceivers makes TV twinlead a safe and practical choice, but a number of hams have used it successfully with power ranges up to 1KW PEP. You can obtain or construct an external 4:1 balun to make the transition from your twinlead feedline to a short length of coax, then bring the coax into the house via a single feedthrough hole if you'd like.



OK, back to construction for a moment. Here's a variation of the \$4 Special that uses center and end insulators made out of plexiglass sheet. But you can improvise yours out of an old DVD, sawed-up PVC pipe, a plastic Coke bottle...or anything you'd like.



If you want to be adventurous, try using 110VAC lamp cord ("zip" cord) as a feedline. Yeah, it'll work as a crude balanced line, believe it or not. Impedance varies, but is usually "close enough" to work. And that reminds me...



Ham Tradition

Today's new hams have been cheated out of the constructive experience of being harangued and berated by crabby old "Elmers" preaching about how they did things in the "good old days", so I am taking it upon myself to provide you with a taste of it here.

There is very little experimentation among hams these days, and most stations are cookie-cutter duplicates of one another: same antenna, same Japanese transceiver, same 599 QSO. This is not the ham radio tradition of old. In the 1930's and 40's you might find one ham using twisted bell wire as a feedline. Another might be using bare electric fence wire on ceramic standoffs nailed to wooden planks. Another might be using copper tubing. Or pieces of metal roofing. Or auto ignition cable. Or tin cans soldered together. If you looked at their stations you'd discover a wealth of marvelous invention, idiosyncratic design, and an incredible ability to press available objects and materials into service. During the 1960's, groups of hams would get together to swill cases of beer and then make antennas out of the discarded cans by soldering them together, end-to-end. *Improvise. Experiment.* Take notes of what works and what doesn't. This is what ham radio is all about.

When you put up your antenna is also crucial. I must mention here the importance of what many early hams called "antenna weather". That is, snow, sleet, freezing rain, or combination of all the above. It has been proven time and time again that any antenna installed in conditions better than abysmal will not function worth a damn. Or, put another way, it takes bad weather to put up a decent antenna. Dark and cold New England winter days are ideal for this activity. Any antenna erected on such a day will inevitably produce miracles.

Many of you will recognize THE \$4 SPECIAL's design as the venerable "double zepp" aerial, a variation of the "end-fed Zepp" -- the skyhook responsible for the dramatic Hindenberg tragedy in Lakehurst, NJ. It seems the blimp's radio op decided to work a little DX while waiting for landing clearance. He sent out a few CQ's. Unknown to him, the ladder line had twisted in the breeze, shorting the bare conductors. A brilliant spark flared up, and....well, that's another story altogether.

To see an "end-fed Zepp" version of the \$4 Special, click [here](#).

Alas, I never had a 100 foot tower to hang this antenna from. The one in Mass. was up 50 ft. and worked what I considered terrific DX. The one I have now is only up 30 ft. and gets good to average results. It won't outdo a yagi at 100 feet. Very few things will.

But for \$4....who can complain?!

..... Joe Tyburczy, W1GFH 2006

2013 HAMFESTS

- August 17** **RCARC 7th Annual Tailgater/HamFest**, Rom-Weber Marketplace,
7 S. Eastern Ave, Batesville, IN <http://www.rcarc.net/HamFest.html>
- September 7** **Michiana Amateur Radio Club Hamfest**, Elks Club Lodge#235,
3535 E. McKinley Ave., South Bend, IN , 8 AM til 1 PM, contact Bob at
kb9iva@sbcglobal.net or 574-674-2835
- October 5** **Hoosier Hills Hamfest**, Lawrence County 4H Fairgrounds,
11261 US Hwy 50 West., Bedford, Indiana <http://www.w9qyq.org/>
- Nov. 16-17** **Indiana State Convention, Fort Wayne Hamfest & Computer Expo.**
Allen County War Memorial Coliseum, Fort Wayne, Indiana
<http://www.fortwaynehamfest.com/>



MID-STATE AMATEUR RADIO CLUB

The Mid-State Amateur Radio Club meets the THIRD SATURDAY of each month in the basement of the Johnson County Emergency Management Agency, 1111 Hospital Road, Franklin, Indiana 46131.

See our website, www.midstatehams.org, for maps on how to get to our meeting.

Everyone is welcome; you do not have to be a HAM to attend our meetings or a member of the club.

WA9RDF
Repeater
146.835/
146.235 MHz
151.4 Hz PL Tone

Club Officers:
President: Robert Jones – KC9NJM
Vice President: Jack Parker – W8ISH
Secretary: Rhonda Curtis– WS9H
Treasurer: Jacki Frederick – KI6QOG
Repeater Trustee: Steve Brown – N9LC

Weekly Net: Sunday evening 7:00 PM ARES/RACES members and ALL RADIO AMATEURS

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Editor: Robert LaGrange N9SIU

Please send your articles to my email n9siu@yahoo.com no later than the 3rd of the month

